



Remote Sensing of Land Indicators for Sustainable Development Goal 15 Exercise

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UN-GGIM 8



Exercise Objective

- Explore the Data from SDG indicator 15.1.1
- Navigate and Explore
 - Worldview Data Portal Exploration
 - European Space Agency (ESA) Climate Change Initiative Land Cover Website Navigation
 - Global Forest Watch
- Test your knowledge on concepts related to remote sensing and SDG 15

UN Statistics for SDGs

- Visit the UN Statistics for SDGs website here:
<https://unstats.un.org/sdgs/indicators/database/>
- Under Data Series, choose SDG 15
- Select the SDG indicator 15.1.1 Forest area as proportion of total land area
- Navigate to the Geographic Areas tab and search for Barbados
- Navigate to the Years tab, Select 2015
- Click Show Table button

UN Statistics for SDG Question

What was the proportion of forest area as a total of land area in 2015 (in percentage)for Barbados?

- A. 8.70
- B. 14.65
- C. 58.00
- D. 25.49

NASA Worldview

- Visit the NASA Worldview website here:
<http://earthdata.nasa.gov/labs/worldview>
- Click on the red “Add Layers” button on the left side of the site
- This will display categories of data available
- Click on the “Vegetation” option.

NASA Worldview Exploration Questions

What are three categories of vegetation data?

- A. Gross Primary Productivity, Corrected Reflectance, and Vegetation Indices
- B. Aerosol Optical Depth, Vegetation Indices, and Snow Cover
- C. Vegetation Indices, Dams, and Temperature
- D. Cloud Top Height, Land Surface Reflectance, and Precipitation Rate

NASA Worldview Exploration Questions

In the same Worldview Vegetation category from the previous question, click on the “Vegetation Indices” option. From the Terra/MODIS platform (will be displayed as the default), what are the two types of data available?

- A. Gross Primary Production (L4, 9 km Grid Cell Mean) and Freeze/Thaw (Daily Landscape)
- B. Normalized Difference Vegetation Index (NDVI) (rolling 8-day) and Enhanced Vegetation Index (EVI) (rolling 8-day)
- C. Snow Cover and Snow Cover (Normalized Difference Snow Index)
- D. Land Surface Temperature (Day) and Forests, Mangrove



European Space Agency (ESA) Climate Change Initiative Land Cover Website

- Visit the European Space Agency (ESA) Climate Change Initiative Land Cover website here: <http://maps.elie.ucl.ac.be/CCI/viewer/>
- - You will see the 2015 Global Land Cover map in the viewer
- - Zoom into Dominica
- - Click on the center of the island on the dominant land cover type (Dark Green)

What is this category of this land cover type?

- A. Tree cover, broadleaved, evergreen, closed to open (>15%)
- B. Mosaic herbaceous cover (>50%)/T and shrub (<50%)
- C. Tree cover, flooded, saline water

Global Forest Watch

- Visit the Global Forest Watch (GFW) Interactive Map here:
- <http://www.globalforestwatch.org/map>
- On the GFW Interactive Map, using the FOREST CHANGE panel along the top, turn off the “Tree Cover Gain” (purple) layer
- You should now only see the “Tree Cover Loss” (pink) displayed.

Identify three countries that have experienced tree cover loss over a large portion of their land area?

Global Forest Watch

- On the same GFW Interactive Map used in the previous question, hover over the CONSERVATION panel along the top and turn on the “Biodiversity hotspots” layer (blue/green color). You may wish to toggle off the other layers to see better.

Identify a country is entirely designated as a hotspot.

Click on the “i” (information symbol) next the layer to read about that dataset



SDG Target 15.1 Review

What is the indicator for 15.1?

- A. Forest area as global total
- B. Proportion of land that is degraded over time
- C. Land cover and land cover change
- D. Forest area as a proportion of total land area



General Questions

What is the largest driver of deforestation globally?

- A. Urban Expansion
- B. Agriculture
- C. Mining
- D. Infrastructure Development



General Questions

What are the three sub-indicators for Indicator 15.3.1?

- A. Land cover and land cover change, land productivity, and carbon stocks
- B. Land degradation, agricultural production, and in-situ data
- C. Land productivity, carbon footprint, and soil moisture
- D. Carbon stocks, urban development, and income



General Questions

What are two examples of medium resolution imagery?

- A. SAR and LiDAR
- B. MODIS and FORMOSA
- C. Landsat and Sentinel-2
- D. Google Earth and SAR



General Questions

What are three attributes to consider when choosing the most appropriate remote sensing data source to use?

- A. Cost, temporal resolution, spatial resolution
- B. LPDAAC, Worldview, Earthdata
- C. Spatial resolution, indicators, future satellite development
- D. Sustainability, Landsat, MODIS



General Questions

Spectral classes are:

- A. Categories of interest to users of the data (e.g. water, forest, urban, agriculture)
- B. Groups of pixels that are uniform with respect to their pixel values
- C. Categories of forest type (e.g. broadleaf, conifer, mixed forest)
- D. Groups of moderate resolution sensors



General Questions

Bare soil and vegetation have similar spectral signatures.

- A. True
- B. False

General Questions

Unsupervised classification:

- A. Uses Landsat bands to create spectral signatures
- B. Represents bands in different dimensions
- C. Uses a pixel based-approach to create land cover maps
- D. Uses an object based-approach to create land cover maps



General Questions

Net Primary Productivity is:

- A. The total of all carbon fixed through photosynthesis Land degradation, agricultural production, and in-situ data
- B. The leaf area per unit ground area
- C. The spectral range from 400-700nm that is used by plants in photosynthesis
- D. The amount of carbon uptake after subtracting plant respiration from Gross Primary Productivity





Thank You!